

# Spatial Distribution Relationship between the GLCC and NLCD

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#### Introduction

- The National Land-Cover Dataset (NLCD) at 30-m resolution and the Global Land-Cover Characteristics (GLCC) at 1-km nominal resolution were produced based on 1992 satellite data and expected to contribute similar land-cover information.
- The new version of national land-cover data based on 2000 vintage LANDSAT data is still under completion by several federal agencies forming the Multi-Resolution Land Characteristics Consortium (MRLC), while several global land-cover maps based on coarse-resolution satellite images have been produced over the last few years.
- Land-cover information based on the most updated data is necessary for current environmental studies using watershed-based hydrologic models such as Soil and Water Assessment Tool (SWAT) and Spatially Referenced Regressions on Watershed (SPARROW).

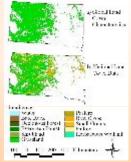
## **Objectives**

- To analyze the spatial distribution of the NLCD and GLCC over the continental U.S by investigating the NLCD distribution within the selected 1-km x 1-km GLCC pixels.
- To contribute to the knowledge of land-cover correlation between fine-resolution and coarse-resolution data sets and provide background information for interchanging less-detailed for detailed land-cover maps in a large area or whenever appropriate.

### Results

Average and standard deviation of NLCD composition for the studied GLCC classes

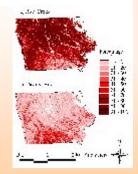
Clause of GLCC Clause of FLCD	Grassland -Xorb	Shunhland - Nevada	Backtoons Farest -	Livrangraen Licorest	Missel Except -	Wooded Wetland -	Constant & Fasters	Creation di Grantian d	Coopland! Woodland	Savanna - Oklahoras
Clarate of NLCD	Delcots.		W <sub>0.0</sub> Virginia	Wetlington	Maine	Rorita.	- lows	Minute - Vites taxia	Marair - Emissier	
Water	and foreign	0 (0.04)	0.21(0.24)	0.000 (0.10)	0.03 (0.01)	0.54(0.54)	2.00 (0.04)	0.00 (0.00)	0.01; (mm)	2.02 (0.07)
Per annial Iso Source	0 (0)	0.000	000	0 (0.02)	0 (0)	0.00	0 (0)	0.00	0.009	1 (0)
Law Insensity Residential	0 (0.01)	0 (0.03)	$\theta \approx 080$	0.01 (0.00)	0.51 (0.03)	0.34 (0.72)	0.041	0.01 (0.08)	0.01; (0.003)	00 (0.06)
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Designed Forest	0.01 (0.03)	0.1 (0.2%)	$0.23 \pm 0.22 \pm$	0.83 (0.3)	0.43(0.21)	0.01 (0.03)	2.09	0.00 (0.06)	0.03 (0.00)	2.00((0.04)
Mari Forest	0 (0.01)	0.000	0.1 (0.07)	0.07 (0.1)	0.93 (0.1.7)	0.0101)	0.006	0.0440.00	0.07 (0.07)	101:00:02;
Struktural	0.01 (0.1)	0.81 (0.37)	000	0.04 (0.08)	0.01 (0.02)	0.:0.025	0.00	0.00	0.009	102:003
Oxdorda Vineyard	0 (0)	0.000	0 (2)	0 (0.04)	0 (2)	0 (0 00)	0.00	2.00	0.00)	2 (9)
Contained of Early account	0.87 (0.33)	0.05 (0.11)	0 :::	0.04 (0.00)	0 (3)	0.1 (0.24)	1.05 (0.06)	0.01 (0.02)	0 (0)	0.34 (0.26)
Pasture Bay	0.05 (0.15)	0.01 (0.00)	$0.1 \pm 0.15$ )	$0.05 \odot 1.0$	0.01 (0.03)	0.00.000	0.16 (0.17)	0.25 (0.22)	0.37 (0.33)	0.34 )0.24)
Bow Craps	0.05 (0.2)	0.000	0.12(0.140	0 (0.12)	0.13 (0.03)	0.11(0.33)	0.68 (0.18)	$0.24 \pm 0.23$ )	0.22 (0.19)	1.04 (0.02)
Small Coning	0.07 (0.13)	0.000	0.00	0 (0.12)	0 (1)	0.700	1.01 (0.02)	0.00	0 (0)	1 05 (0 11)
Tallow	0.04 (0.11)	0 (0)	$a \otimes$	0 (0.02)	0 (2)	0.00	5.00	0.03	0.00	2.00
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Emergent Herbarens Wednade	0.01(0.03)	0.005	$0 \subset 0 D$	0.00.015	0.01 (0.0%)	0.51 (0.27)	1.01 (0.03)	0.05/00/08	0.00.015	3,000.3



The grassland distribution in (a) GLCC for the state of South Dakota and the land-cover information in (b) NLCD corresponded to the GLCC grassland in South Dakota



The forestland distribution for the state of Maine according to the GLCC and NLCD, respectively.



➤ The percentage of (a) row crops and (b) pasture/hay of NLCD for each 1-km unit of cropland and pasture in GLCC across the state of Iowa.

### Conclusions

- A general agreement between the GLCC and NLCD for the classes of grassland, shrubland, deciduous forest and evergreen forest.
- Spatial similarity was lower for the GLCC classes of mixed forest, wooded wetland and cropland/grassland mosaic.
- Both NLCD classes of pasture/hay and row crops were indistinguishable in the cropland of GLCC at 1-km resolution.
- The GLCC classes of cropland and pasture, cropland/woodland mosaic and savanna were appropriately related to multiple NLCD classes.

## Acknowledgements

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